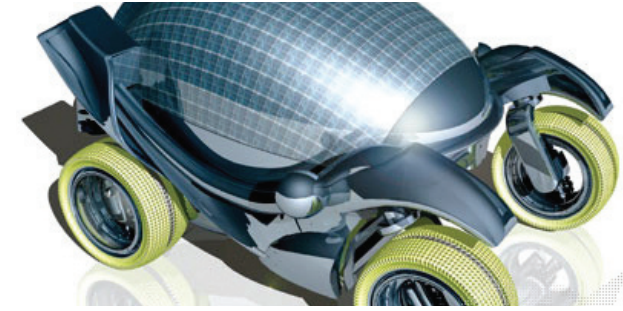
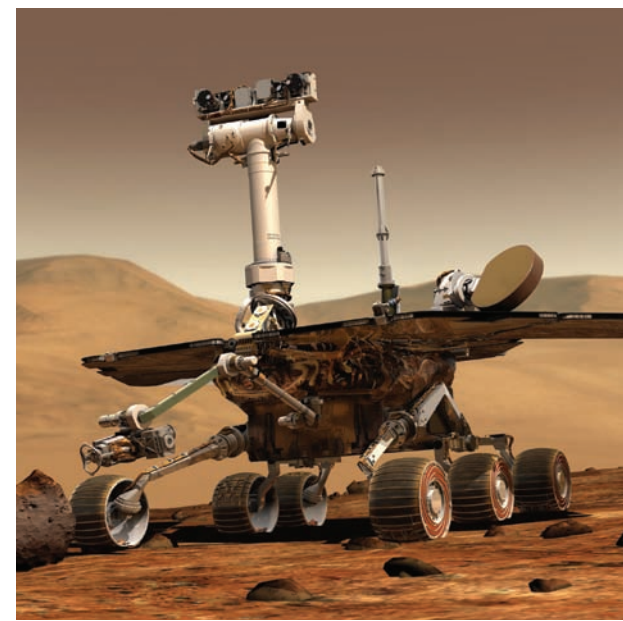
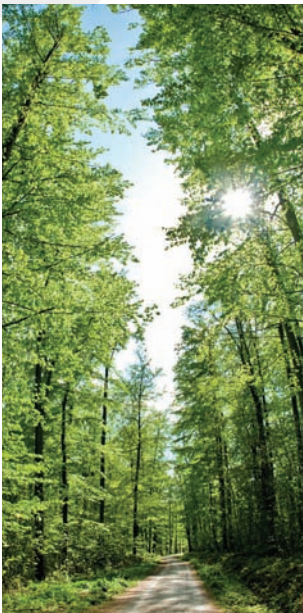
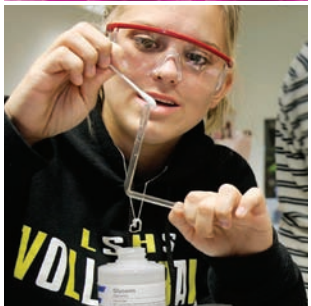
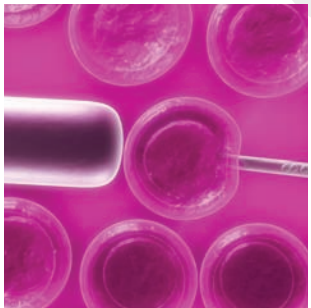




InnovationMS

Engineering for Middle Schools

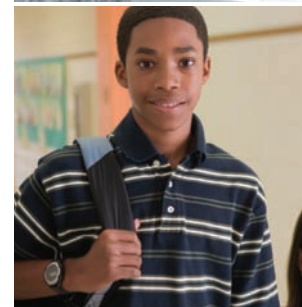
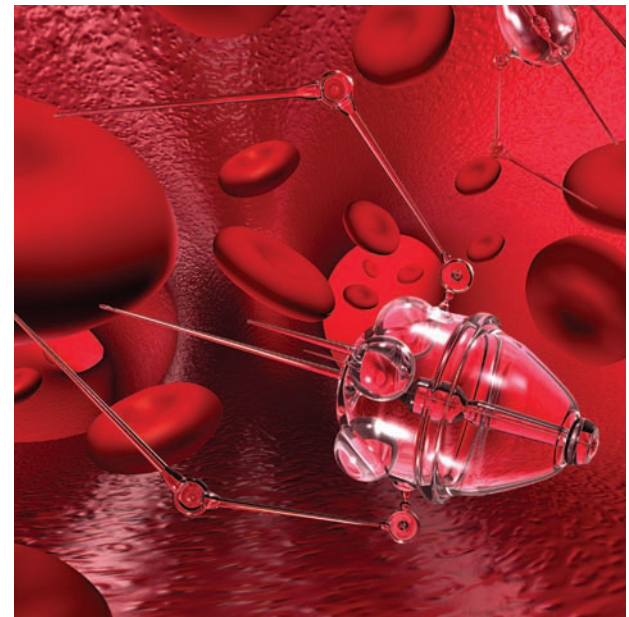
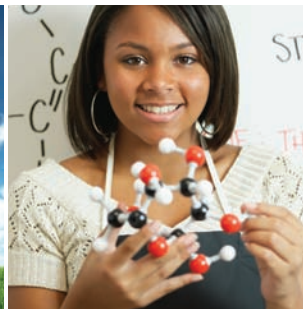




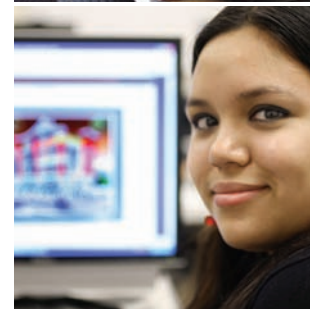
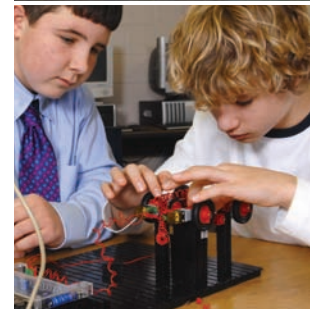
Welcome to the innovation

Imagine a car that could morph its shape based on the driver's whims. What if satellites had metallike skins that could repair themselves from damage in space? What if old high-rise buildings could be turned into vertical farms to help fight world hunger? Picture a 3D cell-phone screen strapped to your wrist. How about turning pond scum into green fuel? Or rearranging the molecules of your blood to fight off deadly diseases? These and countless other life-changing innovations are taking shape in labs, in test tubes and on computer screens around the world. But they all have one thing in common. They all come from an engineer's or scientist's imagination. Right now there's a classroom in your school where you too can begin to dream up tomorrow's wonders – a remarkable space of imagination, innovation and learning that could only be called an Innovation Zone.

zone.



PLTW classrooms are in more than 4,000 schools in all 50 states, serving more than 350,000 students. And each one of them is an Innovation Zone.





Feels a lot like fun and
games, but it's really all about

critical thinking.

What if there was a class where curiosity ruled? Where you learned not only how things worked, but how you might make them work better. Where the biggest challenge was between you and your imagination. What if that classroom was filled with the latest design software, advanced materials and cutting-edge equipment – a place buzzing with project-based assignments, like programming robots, exploring nanotechnology and building 3D models? And while you were exploring, examining and experimenting, you

were actually building a foundation in the most vital fields of learning and essential professions needed in the world today and tomorrow. It's what teachers call STEM – science, technology, engineering and mathematics. If you were in a class like that, you'd be experiencing an exciting approach to education that fuels imaginative thinking and creative problem solving – just the skills that help you succeed in your education and beyond. You'd be a PLTW student learning a lot and having a lot of fun learning in the Innovation Zone.

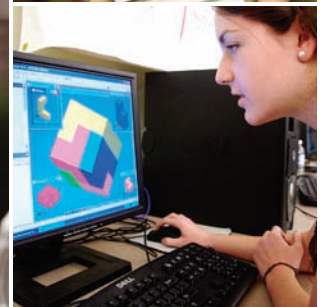
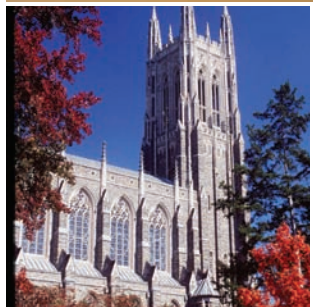
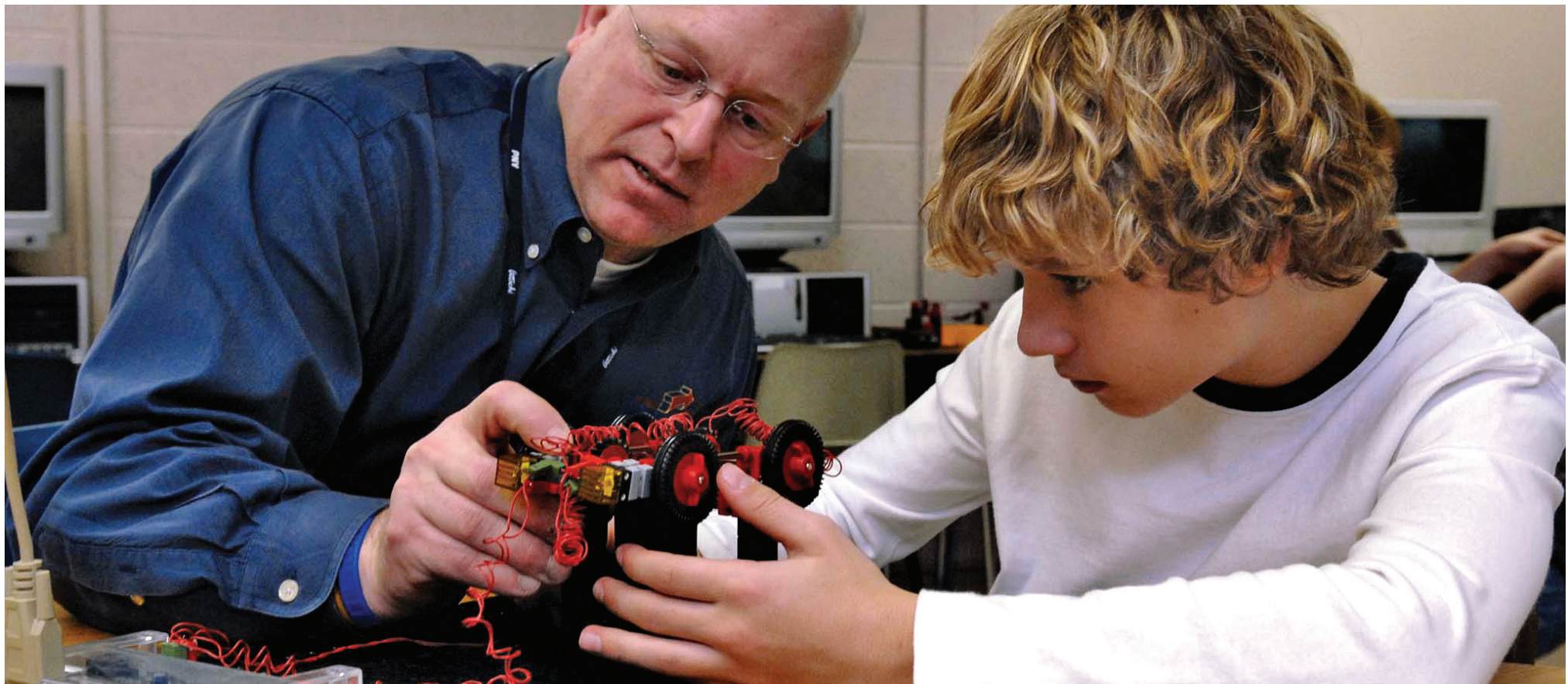


A STEM program that's a proven pathway to the future.

The PLTW program is designed to serve middle school students of diverse backgrounds, helping them all to become high school, college and career ready, from those already interested in STEM-related fields to those who are more inspired by the application of STEM than they are by traditional math and science courses. PLTW classes are taught in school during the school day, and every PLTW instructor receives extensive training as well as ongoing support in the courses they teach. While the STEM subject matter

is rigorous, the approach is never rigid. That's because the PLTW program provides a flexible curriculum platform, which schools can customize to meet the specific needs of their academic environment. In addition, PLTW schools can tap into the generous support and active involvement of some of America's leading corporations, philanthropic foundations, and prestigious colleges and universities. Their efforts help ensure that PLTW classrooms have the latest technology, materials and equipment, and that PLTW students are learning the

PLTW alumni study engineering and technology at colleges and universities at rates up to ten times the average of all students.





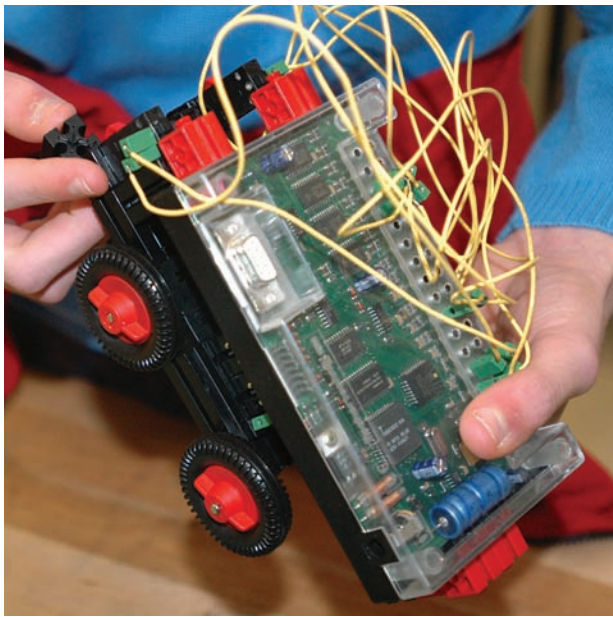
most up-to-date information found in such fields as information technology, engineering design, alternative energy and ecotechnology. They provide assistance with the development and revision of PLTW coursework and, in the case of universities, opportunities for college credit.

Annual studies and surveys of the PLTW program have shown it to be a launching pad for college and professional careers and a boost for academic performance. PLTW students achieve significantly higher scores in reading, mathematics and science than other career and technical education students. They earn higher GPAs as freshmen in college. And PLTW alumni are studying engineering and technology in greater numbers than the national average, with a higher retention rate in college engineering, science and related programs than non-PLTW students. As the nation's leading provider of rigorous and innovative STEM education, our vision is to ignite the spark of ingenuity, creativity and imagination within all students. Indeed, by partnering with those in the classroom and boardroom, PLTW is preparing our students to become the most innovative and productive in the world.

To find more information about Project Lead The Way and take the first steps on a pathway of imagination, innovation and learning, talk with your teacher, counselor or principal. Or go online and visit our website at www.pltw.org.

Gateway To Technology





The **PLTW Gateway To Technology Program** is taught in conjunction with a rigorous academic curriculum. The **hands-on project-based** program is divided into six independent nine-week units. Students envision, design and test their ideas with the same advanced modeling software used by companies like **Lockheed Martin, Intel and Sprint**. They study mechanical and computer control systems. **Think robotics and animation**. Students also explore the importance of energy, including innovative ways to reduce, conserve and produce it using **solar, thermal and wind power**. The knowledge that students gain and the skills they build from the Gateway To Technology Program create a strong foundation for further STEM learning, from **nanotechnology** to applied engineering.

Design & Modeling

Unit 1

This unit uses solid modeling software (a sophisticated mathematical technique for representing solid objects) as part of the design process. Utilizing this design approach, students understand how design influences their lives. Students also learn sketching techniques and use descriptive geometry as a component of design, measurement and computer modeling. Students brainstorm, research, develop ideas, create models, test and evaluate design ideas, and communicate solutions.

Automation & Robotics

Unit 2

Students trace the history, development and influence of automation and robotics. They learn about mechanical systems, energy transfer, machine automation and computer control systems. Students acquire knowledge and skills in problem solving, teamwork collaboration and innovation.

Energy & the Environment

Unit 3

Students investigate the importance of energy in our lives and the impact that using energy has on the environment. They design and model alternative energy sources and participate in energy fairs to demonstrate energy concepts and innovative ideas. Students evaluate ways to reduce energy consumption through energy efficiency and waste management techniques.

Flight & Space

Unit 4

Students study the history of aerospace through hands-on activities, research and a presentation in the form of an infomercial. Students explore the science behind aeronautics and use their knowledge to design, build and test a model glider. Simulation software is used to expose students to traveling and living in space.

Science of Technology

Unit 5

Students trace how science has affected technology throughout history and learn about applied physics, chemical engineering and nanotechnology through exploratory activities and projects.

Magic of Electrons

Unit 6

Through hands-on projects, students explore the science of electricity, the behavior and parts of atoms, circuit design and sensing devices. Students acquire knowledge and skills in basic circuitry design and explore the impact of electricity on our lives.



PROJECT LEAD THE WAY

PLTW

877-335-7589 www.pltw.org

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